

**LOW RELATIVE INTENSITY NOISE  
FIBER GRATING TYPE LASER DIODE**

**ABSTRACT OF THE DISCLOSURE**

5           The dependency of intensity noise is used to determine the wavelength  
difference between a laser diode gain peak and a reflection peak of a fiber  
grating in a fiber grating type laser diode. Monitoring and determining the  
relative noise intensity of such a laser enables the control of the laser diode or  
the fiber grating such that the intensity noise is as low as possible. Such an  
10   approach enables the use of a fiber grating type laser diode as Raman pumps  
in high-speed transmission systems where low intensity noise is a requirement,  
especially when the Raman pump power propagates in the same direction as  
the transmission signals (known as Raman co-pumps)..